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Weather

WEATHER SUPPORT

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This instruction implements Air Force Policy Directive 15-1, *Atmospheric and Space Environmental Support*. It identifies the specific support services and related responsibilities performed by the Contract Base Weather Station for Buckley Air Force Base (AFB), tenant units, and all other agencies associated with Buckley AFB, Colorado. It also outlines responsibilities of supported organizations. Maintain and dispose of records created as a result of prescribed processes in accordance with Air Force Manual (AFMAN) 37-139, *Records Disposition Schedule* (will convert to AFMAN 33-322, Volume 4). Comply with Air Force Instruction (AFI) 33-332, *Air Force Privacy Act Program*, for documents containing: "Privacy Act Information". For "Official Use Only" information comply with Department of Defense Regulation (DoD) 5400.7-R/AFSUP, *DoD Freedom of Information Act Program*, **Chapter 4**.

SUMMARY OF REVISIONS

This revision updates this instruction to comply with latest Air Force Weather guidance. Changes include: Deletion of toxic corridor capability (paragraph 7.1.), addition of new weather advisories (**Attachment 7**), addition of new agencies and their weather requirements (**Attachment 8**).

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Chapter 1

OVERVIEW

1.1. General. This instruction implements policies for weather support documentation in accordance with AFPD 15-1, *Atmospheric and Space Environmental Support*. The Buckley AFB Weather Station is located on the Southeast corner of Building 909, next to Base Operations. The Weather Station is operated by Midwest Weather, Inc. The observing function is a 24-hour continuous operation. The forecasting section operates 0600-1900 hours daily, or until the 140th Wing (140 WG) ceases flying each day, whichever is later. The weather contractor is responsible for compliance with all Air Force regulations and supplemental directives to accomplish the mission. The Buckley AFB Weather station provides or arranges for weather support to Buckley AFB host and tenant units.

1.2. Terms Explained:

1.2.1. Joint Air Force and Army Weather Information Network (JAAWIN). A military internet weather information system that constantly provides worldwide observed and forecasted data to help aircrews and military forecasters. This network is run by the Air Force Weather Agency at Offutt AFB, NE.

1.2.2. New-Tactical Forecast System (NTFS) or Automated Meteorological Information System (AMIS). A computer-communication database system consisting of a computer in the Base Weather Station (BWS) and remote terminals with alphanumeric monitors at various locations on and off base.

1.2.3. Base Weather Station (BWS). The Base Weather Station is operated by Midwest Weather Inc. and is located on the southeast side of Building 909 next to Base Operations.

1.2.4. Basic Weather Watch (BWW). A Basic Weather Watch involves limited versus continuous weather observing. The BWW requires observing and reporting of weather conditions at Buckley AFB on an hourly basis, when no local or special weather criteria is occurring. As a minimum, checks are performed every 20 minutes to see if any local or special observing criteria thresholds have been crossed, which would require dissemination of the appropriate update.

1.2.5. Cooperative Weather Watch (CWW). A CWW is established between air traffic control (ATC) and the BWS. The occurrence of previously unreported weather conditions which could affect flight safety or which could be critical to the safety or efficiency of other local operations and resources is of primary concern.

1.2.6. Coordinated Universal Time (UTC). An atomic time scale that is the basis for broadcast time signals. In practice, it is the universally accepted time of reference.

1.2.7. Desired Lead-Time (DLT). The amount of advance notice a supported agency requires to complete necessary actions prior to the onset of an established weather event.

1.2.8. Distant (DSNT). Used to identify weather phenomena beyond 10 statute miles.

1.2.9. Meteorological Watch (METWATCH). The process of actively comparing observed weather conditions with those forecasted and updating forecasts with the latest information.

1.2.10. Pilot-to-Metro Service (PMSV). An Ultra High Frequency (UHF) radio service (228.45 MHz) that allows aircrews to contact weather personnel for updated weather conditions and to pass on significant flight weather reports.

1.2.11. Pilot Report (PIREP). A report of observed flight weather conditions usually passed to weather personnel through the PMSV radio.

1.2.12. Severe Weather. Established weather conditions that are deemed to pose a hazard to flight safety, property, or life. Examples include but are not limited to tornadoes, heavy snow, and winds greater than 50 knots.

1.2.13. Terminal Aerodrome. The area within a 5 nautical mile radius of the center point of the Buckley AFB runway complex.

1.2.14. Terminal Aerodrome Forecast (TAF). A 24-hour forecast for cloud layers, prevailing visibility, weather, obstructions to visibility, surface winds, altimeter setting, and icing and turbulence from the surface to 10,000 ft mean sea level (MSL).

1.2.15. Thunderstorm (TSTM). Atmospheric condition consisting of lightning (LTG), thunder, and heavy precipitation. Potential exists for gusty winds, hail, severe turbulence, icing, and wind shear.

1.2.15.1. Severe (SVR) Thunderstorm. A thunderstorm capable of producing winds 50 knots or greater and/or hail 3/4 inches in diameter or greater.

1.2.15.2. Strong (STR) Thunderstorm. A thunderstorm capable of producing winds 35 to 49 knots and/or hail 1/2 inches to less than 3/4 inches in diameter.

1.2.15.3. Weak Thunderstorm. A thunderstorm capable of producing winds 25 to 34 knots and/or hail less than 1/2 inches in diameter.

1.2.16. Vicinity (VC). The area between five and ten statute miles of the center point of the Buckley AFB runway complex.

1.2.17. Weather Advisory. A special message disseminated via NTFS, which notifies supported organizations of established weather conditions that require certain protective actions by various base agencies.

1.2.17.1. Observed Advisory. An observed weather advisory will be issued only when established weather conditions are actually observed to be occurring at the terminal aerodrome. These advisories will be canceled when the conditions are no longer being observed per applicable guidance.

1.2.17.2. Forecast Advisory. A forecast advisory will be issued when an established weather condition is expected to occur. Advisories will be amended, upgraded, or canceled as required to accurately reflect conditions. Advisories issued for Buckley AFB are for conditions forecast to affect the terminal aerodrome, and must be issued by a certified weather forecaster.

1.2.18. Weather Warning. A special message transmitted over NTFS to highlight established weather conditions that require certain protective actions by various base agencies. A weather warning will be issued when an established weather condition of such intensity as to pose a hazard to flight safety, property, or life is occurring or is expected to occur. Warnings will be amended, upgraded, or canceled as required to accurately reflect conditions. Warnings issued for Buckley AFB are for conditions forecast to affect the terminal aerodrome, and must be issued by a certified weather forecaster.

1.2.19. Weather Watch. A special message transmitted over NTFS to advise supported agencies of the potential for an established weather condition to occur within 10 nm of Buckley AFB. The criteria for these are listed in [Attachment 2](#). If required, weather watches will be upgraded to weather warnings. Agencies should review required actions on receipt of a weather watch.

Chapter 2

WEATHER STATION OPERATIONS

2.1. Operating Hours. The BWS provides continuous 24-hour, 7-day per week weather observing services in accordance with published Air Force directives. The BWS forecast section is open from 0600-1900 hours daily, or until the 140 WG ceases flying each day, whichever is later. Hourly, special, and local surface weather observations are taken and disseminated under the BWW/Cooperative Weather Watch concepts IAW current Air Force directives, to include all published landing minimums found in Flight Information Publications applicable to Buckley AFB. (See [Attachment 1](#) for special and local observation criteria.) All observations will be transmitted to using agencies via AMIS. Staff, liaison, climatic, and technical support are also available during normal duty hours or as previously coordinated.

2.2. Duty Priorities. All base agencies, aircrew, and weather personnel must ensure higher priority tasks are completed first. Weather station duty priorities are listed below. Requests for changes to these duty priorities must be submitted to the BWS Supervisor.

2.2.1. During hours when the airfield is OPEN:

- 2.2.1.1. Complete Emergency War Orders Tasking.
- 2.2.1.2. Respond to aircraft/ground emergencies.
- 2.2.1.3. Take and disseminate surface observations.
- 2.2.1.4. Answer Pilot-to-Metro Service (PMSV) calls.
- 2.2.1.5. Disseminate weather watches, warnings, and advisories.
- 2.2.1.6. Disseminate Pilot Reports (PIREPs).
- 2.2.1.7. Provide mission control forecasts.
- 2.2.1.8. Prepare and issue terminal forecasts.
- 2.2.1.9. Provide flight weather briefings.
- 2.2.1.10. Provide other briefings.

2.2.2. During hours when the airfield is CLOSED:

- 2.2.2.1. Complete Emergency War Orders Tasking.
- 2.2.2.2. Respond to aircraft/ground emergencies.
- 2.2.2.3. Disseminate weather watches, warnings, and advisories.
- 2.2.2.4. Answer Pilot-to-Metro Service (PMSV) calls
- 2.2.2.5. Take and disseminate surface observations.
- 2.2.2.6. Disseminate Pilot Reports (PIREPs).
- 2.2.2.7. Provide mission control forecasts.
- 2.2.2.8. Prepare and issue terminal forecasts.
- 2.2.2.9. Provide flight weather briefings.

2.2.2.10. Provide other briefings.

2.3. Release of Weather Information. Operations security and communications security will be considered prior to any release of weather information. Specific restrictions do not exist on the dissemination of weather information to other military agencies. Information exchange between the BWS and the local National Weather Service office is encouraged in the interest of public safety and resource protection. Routine working agreements will be maintained in writing from either agency. Support to other non-military agencies, foreign governments, or individuals, will be coordinated with the Staff Judge Advocate (460 ABW/JA) before service or information can be provided. All direct media requests for weather information will be approved by the host-wing public affairs office. This restriction does not include indirect routine weather information which is passed on automated weather circuits or information passed through the National Weather Service in the interest of public safety.

2.4. Observing Limitations. The following limitations may preclude the accurate observing of some weather phenomena:

2.4.1. The official point of observation is approximately 35 feet from the southeast corner of Building 909 (near the rain gauge). The visibility from this point is partially restricted by buildings from 240 - 320 degrees and terrain somewhat blocks the view of the airfield from 320 - 135 degrees. The observer will need to walk to the west and north to adequately see the entire horizon.

2.5. Alternate Operating Location for Weather Support. Both the observing and forecasting services will relocate to an alternate site in the event of an emergency that could impact Building 909. In accordance with (IAW) AFI 32-4001, *Disaster Preparedness Planning and Operations* the duty observer and forecaster will not relocate for exercises unless qualified personnel are available to man the weather station during their absence. The primary back-up weather station is the Air Traffic Control Tower. Access to a Class A telephone and the catwalk will be required. If available, a back up radio will be set to 228.45 MHz for PMSV support. When evacuated, the duty forecaster will notify the Buckley ANG Command Post and the 460th Air Base Wing Command Post (460 ABW/CP) that weather is relocating and to phone patch PMSV contacts to the alternate location. Alternate forecast/observer kits will be kept in the BWS and available for immediate relocation.

2.5.1. Observing Services. Limited weather observations will be taken from the alternate site and provided to the air traffic control tower. These observations will include sky condition, visibility, winds, altimeter setting, pressure altitude, temperature, dew point, and weather and obstructions to vision.

2.5.2. Forecasting Services. Limited forecast services will be conducted from the alternate site and provided to the air traffic control tower. All weather watches, warnings, and advisories which would normally be disseminated using NTFS, will be passed to NTFS users via telephone.

2.6. Severe Weather Management. The duty forecaster or observer will contact the BWS Manager whenever the potential exists for severe weather at Buckley AFB. The BWS Manager will determine if local forecasting support is required after normal duty hours. Weather support during periods of severe weather will be limited to mission essential requirements to ensure critical weather information is relayed in a timely manner.

2.7. Pilot Reports (PIREPs). A prime source of current weather information is the pilot report. Aircrews are highly encouraged to pass PIREPs to BWS personnel through squadron operations, tower, or

PMSV radio. PIREPs can and do provide our flying customers with valuable information from data sparse areas. All PIREPS received will be disseminated over NTFS if they meet the required criteria.

2.8. Radar Reports. The BWS monitors a Weather Surveillance Radar–1988 Doppler (WSR-88D) Principal User Processor (PUP) that is connected to the National Weather Service's radar data acquisition unit at the Front Range Airport. The WSR-88D provides detailed information on thunderstorms and severe weather, which could affect Buckley operations. In addition, the weather station can get accurate weather radar information for different flying areas that may impact locally originated flying.

2.9. Oversight Responsibility. Since weather services are a contracted function, the 140th Operations Group Airfield Management (140 OG/OSA), in coordination with the 140th Operations Group Commander (140 OG/CC), is designated as the functional area chief (FAC). As the FAC, the 140 OG/OSA will monitor day-to-day operations of the BWS and act as the focal point for all base agencies in matters relating to weather support issues/problems. The 140 OG/OSA will coordinate any weather support requirement changes with the Quality Assurance Evaluator (QAE) from the Air National Guard Operations Weather Support Division (ANG/XOOSW). The 140 OG/OSA shall exercise operational, financial, and administrative oversight of the BWS.

Chapter 3

WEATHER OBSERVING SERVICES

3.1. Official Observing Location. The official point of observation is approximately 35 feet from the southeast corner of Building 909 (near the rain gauge). The visibility from this point is restricted by buildings from 270 - 320 degrees and terrain somewhat blocks the view of the airfield from 320 - 135 degrees. The observer may need to walk to the west and north to adequately see the entire horizon.

3.2. BWW: The observer performs a BWW from the weather station in accordance with AFMAN 15-111, *Surface Weather Observations*. When significant changes in the weather are expected or detected, the observer will evaluate the need to take special or local observations IAW Air Force directives. This will be done at an interval not to exceed 20 minutes when the ceiling or visibility is observed or forecast to increase to, exceed, or decrease to less than any of the following:

Ceiling 3,000 feet

Ceiling 1,500 feet

Ceiling 1,000 feet

Ceiling 200 feet

Visibility 3 miles

Visibility 2 miles

Visibility ½ mile

Precipitation (any form)

Thunderstorm/lightning

Fog

3.3. CWW. To augment the BWW, a CWW has been established in which ATC personnel provide additional weather information to the observer when significant weather phenomena are detected. Significant phenomena include, but are not limited to, tornadoes, funnel clouds, precipitation, lightning, and reduced visibility.

3.4. Surface Weather Observations. The duty weather observer takes, records, and disseminates an official observation from the official observing location before every hour IAW Air Force directives. All weather observations at Buckley AFB are taken in accordance with instructions in AFMAN 15-111. The following are the elements observed by the BWS observer and disseminated locally and longline, in the order they appear in the observation, for use by various agencies using the AMIS:

3.4.1. Time. All time entries on AMIS will be in UTC. Weather watches, warnings, and advisories will also have the corresponding LOCAL (L) times.

3.4.2. Wind Speed and Direction. A printed recording of the 2-minute averaged wind speed and direction is made every minute. Wind direction is reported to the nearest ten degrees and speed to the nearest whole knot. Wind direction is transmitted true for longline dissemination and magnetic for local dissemination.

3.4.3. Prevailing Visibility. This is defined as the greatest visibility equaled or exceeded in at least half of the horizon circle not necessarily continuous. Prevailing visibility is a visual determination made by the observer. When the visibility, either as seen by the observer or reported by ATC personnel is below four miles, the lowest visibility reported will be used for aircraft operations. Obstructions to vision will be determined by the observer and reported when the prevailing visibility is six statute miles or less, except in the case of precipitation, which is reported when it occurs. All visibilities are reported in statute miles.

3.4.4. Runway Visual Range (RVR). RVR is reported immediately following the prevailing visibility. RVR will be reported when the prevailing visibility is one statute mile or less, or when the RVR is 6,000 feet or less.

3.4.5. Weather and Obstruction to Vision. This consists of both weather and non-weather phenomena, which are observed and/or restrict visibility. The table below identifies the more common phenomena and the observing code used:

Table 3.1. Common Phenomena and Observing Code.

QUALIFIER		WEATHER PHENOMENA			
Intensity or Proximity	Descriptor	Precipitation	Obscuration	Other	
-Light	MI Shallow	DZ Drizzle	BR Mist (Visibility > 1000m)	PO Well developed Dust/Sand Whirls	
Moderate	PR Partial	RA Rain	FG Fog (Visibility < 1000nm)		
+Heavy	BC Patches	SN Snow	FU Smoke	SQ Squalls	
VC Vicinity (5-10 statute miles)	DR Low Drifting	SG Snow Grains	VA Volcanic Ash	FC Funnel Clouds (Tornado or Water Spout)	
	BL Blowing	IC Ice Crystals (Diamond Dust)	DU Widespread Dust		
	SH Showers	PL Ice Pellets	SA Sand		SS Sandstorm
	TS Thunderstorms	GR Hail	HZ Haze		DS Duststorm
	FZ Freezing (Supercooled)	GS Small Hail and/or Snow Pellets	PY Spray		
		UP Unknown Precipitation			

3.4.6. Sky Condition. This consists of sky coverage (Clear (SKC) = 0/8, FEW = 1/8-2/8 of the sky covered, Scattered (SCT) = 3/8-4/8 of the sky covered, Broken (BKN) = 5/8-7/8 of the sky covered, Overcast (OVC) = 8/8 of the sky covered) and height above ground level (AGL) in hundreds of feet.

The lowest layer at which 5/8 of the sky or more is covered is the ceiling. Heights of ceilings less than 12,000 feet may be measured using the laser beam ceilometer. When a measurement cannot be obtained, ceiling heights are determined visually, using Doppler radar returns, upper air reports, mountainous terrain, and from aircraft flying in the local area.

3.4.7. Temperature and Dew Point. Instantaneous readings of temperature and dew point are reported in degrees Celsius.

3.4.8. Altimeter Setting. Altimeter setting values are determined using a digital barometer and transmitted on all observations, except for some single element observations (i.e., tornadoes). Altimeter setting is reported to the nearest hundredth of an inch of mercury.

3.4.9. Sea-Level Pressure (SLP). This is the atmospheric pressure at mean sea level empirically determined from the observed station pressure. SLP is reported in millibars.

3.4.10. Remarks. Significant remarks will be disseminated on all observations to present a more precise picture of existing weather conditions.

3.5. Types of Observations. The duty observer makes the following types of observations: Aviation Routine Weather Report (METAR), Aviation Select Special Weather Report (SPECI), and Local Surface Observation (LOCAL). [Attachment 1](#) and [Attachment 2](#) list the special and local observation criteria respectively. All observations are sent to local base agencies using the AMIS. All observations, except locals, are also sent into the Automated Weather Network (AWN) for use by non-base agencies. In the event of an AMIS outage, local dissemination will be accomplished as outlined in paragraph [2.5.1.](#) and longline dissemination will be done via uploading information onto the Air Force Weather Information Network (AFWIN) or by an alternate base weather station.

3.5.1. Aviation Routine Weather Report (METAR). METAR observations are taken between 45-55 minutes past the hour and transmitted between 55-59 minutes past the hour, 24-hours per day. Elements included in METAR observations are listed in paragraph [3.4.](#)

3.5.2. Aviation Select Special Weather Report (SPECI). SPECI observations are taken when the conditions for special criteria are met. The established criteria for special observations are listed in [Attachment 1](#). Specials contain all elements included in a METAR observation, except for sea-level pressure. Single element specials may be made only when time is critical and encoding all elements would jeopardize life or property (for example tornadoes). These single element specials will contain only the time and the element, which required the observation.

3.5.3. Local (LOCAL). LOCAL observations are taken when conditions for local criteria listed in [Attachment 2](#) are met. LOCAL observations contain the same elements as a SPECI but are only transmitted locally. Single element LOCAL observations are taken for RVR and altimeter settings.

3.6. Additional Requirements. Equivalent Chill Temperature (ECT), commonly known as “wind chill”, will be appended to each hourly observation when the temperature is 40 degrees Fahrenheit or less.

3.7. Observing Instrumentation. The Buckley AFB runway has instruments at various locations on the airfield. Readouts from this equipment and the digital barometer are all located in the BWS. [Attachment 3](#) lists the weather sensors and their approximate location on the airfield.

3.8. Airburst Range (R2601, Range 123) Observations. Observations from Airburst Range will periodically be taken via an AN/TMQ-53 Remote Weather Sensing System operated by Range personnel. When acquired and operational, this information will be relayed to the AWN systematically as locally established SPECI criteria and hourly weather observation thresholds are met. Operation of this system will be the exception rather than the rule until further notice. When operating, information from this equipment will be used to generate Target Acquisition Weather Software (TAWS) data for use by 120th Fighter Squadron personnel as needed.

3.9. Radar. The BWS operates a PUP off of the main WSR-88D computer operated by the National Weather Service (NWS). The WSR-88D is a sophisticated weather radar capable of detecting not only all types of precipitation, but clouds and wind information as well. The NWS and BWS will work together to ensure operation of the radar meets the needs of both parties. The antenna and transmitter are located at the Front Range Airport. Dial-in capability to other WSR-88D radar sites is available for flight weather briefs.

Chapter 4

FORECASTING SERVICES

4.1. General. The BWS forecast section is open from 0600-1900 hours daily, or until the 140 WG ceases flying each day, whichever is later. These hours do not preclude responsibilities for forecaster coverage as directed in AFMAN 15-125 during forecast or reported severe weather events. Forecast services consist of local weather forecasts, flight weather briefings, staff briefings, and a meteorological watch program (METWATCH). **Chapter 5** covers the METWATCH program in more detail.

4.2. Terminal Aerodrome Forecast (TAF). The duty forecaster issues a 24-hour Terminal Aerodrome Forecast (TAF) for Buckley AFB at approximately 0600L, 1400L and 1800L (L=Local). These forecasts apply to an area within a five nautical mile radius of the center of the runway complex at Buckley AFB. The TAF will specify elements listed in **Attachment 4** with the time of expected occurrence to the nearest hour and the intensity, when applicable.

4.3. TAF Amendments. TAF amendments are unscheduled forecast updates, which revise the content of the current forecast. Amendments cover the remaining period of the original forecast. TAF amendments are issued whenever any of the amendment criteria listed in **Attachment 5** are expected to occur before the next scheduled TAF, and this previously unforecast condition is expected to last for 30 minutes or longer or if that condition exists for more than half of the forecast period. Amendments are also issued when a forecast change of any of the criteria listed in **Attachment 5** does not occur by the hour specified in the forecast and is not expected to occur within the next 30 minutes. TAF amendments will be issued in accordance with Air Force directives.

4.4. TAF Dissemination. The primary means for dissemination of the TAF and amendments is via the AMIS. The elements included are time, wind direction, wind speed, visibility, obstructions to vision, sky cover, cloud height, icing, turbulence, minimum altimeter, and significant remarks. If the AMIS is inoperative, the forecast will be disseminated to the tower, base agencies, and an alternate military Base Weather Station by telephone.

4.5. Weather Internet Homepage. The 25th Operational Weather Squadron has a web page (<https://25ows.dm.af.mil>) on the Internet dedicated to providing weather information for the Buckley AFB complex. A wide variety of operationally significant weather information is available from this site.

Chapter 5

THE METEOROLOGICAL WATCH (METWATCH) PROGRAM

5.1. General. METWATCH is the process of monitoring changing weather conditions and informing supported agencies that established weather conditions could affect their operations or pose a threat to property or life. Weather advisories, watches, and warnings are issued to provide information to supported agencies to allow them to take appropriate actions.

5.2. Weather Advisories. A weather advisory is a special notice to supported agencies that established weather conditions are occurring or are expected to occur. There are two types of advisories, observed and forecast. Observed advisories are issued when the specified weather condition is occurring and is canceled when the condition no longer exists. Forecast advisories are issued when the established weather condition is expected to occur. These advisories are canceled when the condition is no longer expected or if the advisory is superseded by a weather warning. [Attachment 7](#) lists the criteria for weather advisories and the DLT for forecast advisories. Weather advisories are disseminated via the AMIS and telephone when necessary. When the AMIS is inoperative, advisories will be disseminated to AMIS users via telephone. Changes to the criteria for weather advisories will be coordinated through ANG/XOOSW (QAE).

5.3. Weather Watch. A weather watch is an informational message to supported agencies that conditions are favorable for the formation of threatening weather. Weather watches are generally issued prior to weather warnings and are intended to provide advance notice of potentially significant weather. Weather watches will be issued on the potential for the weather condition to occur and will be canceled when the potential no longer exists or when upgraded to weather warnings when the potential is determined to be significant enough that protective measures must be taken to protect property and life. [Attachment 8](#) lists criteria for weather watches. Weather watches are disseminated via the AMIS and telephone when necessary. When the AMIS is inoperative, watches will be disseminated to AMIS users via telephone.

5.4. Weather Warning. A weather warning is a special notice to supported agencies that established weather conditions are occurring or are expected to occur. Weather warnings differ from weather advisories in that the severity of the weather conditions is greater for weather warnings. The criteria for weather warnings and the desired lead times are listed in [Attachment 8](#). Changes to the criteria for weather warnings will be coordinated through ANG/XOOSW (QAE). The DLT for weather warnings are based on the minimum time a supported agency requires to take protective action to protect property and lives. The forecaster will strive to provide at least the DLT specified for each criteria. However, the state of the science does not allow the provision of DLT in all cases. The forecaster will provide valid times on all warnings. Weather warnings will be issued when conditions are expected to occur and canceled when conditions are no longer expected to occur. The forecaster will cancel all warnings, which are no longer required, prior to the end of their valid times. When required, the forecaster will extend the valid times for warnings prior to the end of their valid time. The forecaster will amend a warning when any of the criteria or valid times changes. If the amendment includes the addition of other warning criteria, the forecaster will attempt to provide the appropriate lead-time for the new criteria. Warnings are disseminated via the AMIS and telephone, with the exception of tornadoes, which will first be telephoned to the 460 ABW/CP and then sent via AMIS. Each agency with an AMIS terminal ([Attachment 9](#)) is the primary dissemination point of contact for all sections within that agency for all weather information. To ensure timely dissemination of critical weather warning information, the BWS should not be telephoned for information

that is already disseminated on the AMIS. When the AMIS is inoperative, warnings will be disseminated to AMIS users via telephone.

5.5. Centrally Produced Point Warnings. The Air Force Weather Agency (AFWA) is responsible for issuing point warnings for several agencies supported by the BWS. The BWS will relay these warnings to the appropriate agencies until such time as they can be directly routed to the agencies via AMIS.

Chapter 6

BRIEFING SUPPORT

6.1. General. BWS personnel provide a wide variety of in-station and out-of-station briefings. In-station briefings are preferred because of the availability of weather information and displays.

6.2. Flight Weather Briefings . The duty forecaster provides flight weather briefings to all assigned aircrews and to transient aircrews during normal duty hours. Briefings will be documented using DD Form 175-1, *Flight Weather Briefing*, or an approved local/MAJCOM substitute. To ensure adequate preparation time, requests for flight weather briefings should be made to the duty forecaster the day prior to the briefing if possible.

6.3. Supervisor of Flying (SOF). The duty forecaster will brief the SOF (120th Fighter Squadron) about significant weather developments either in-station or via the telephone or hotline. Open communication between the SOF and the duty forecaster is essential for safe aircraft operations at Buckley AFB.

6.4. Pilot to Metro Service (PMSV). The BWS operates a PMSV radio to provide updated weather information to airborne aircrews and to receive PIREPs. UHF channel 228.45 MHz is continually monitored by the BWS. Aircrews should relay PIREPs of weather conditions encountered during takeoff/climb-out, approach, landing, and on the ranges/in the Military Operating Areas when practical. It is extremely critical for the safety of other aircrews that all hazardous or unforecast flight weather conditions be promptly reported. PIREPs can be passed directly to the BWS via the PMSV, to ATC personnel, or to the SOF. ATC personnel and/or the SOF will then pass the PIREP on to the weather station, time permitting. The BWS will disseminate all PIREPs longline and will also disseminate them locally when weather conditions in the terminal area are significantly different from those briefed or previously forecast, or when the conditions could impact the safety of flight operations. These conditions include, but are not limited to, low-level wind shear below 2,000 feet above ground level (AGL), icing of any type or intensity, moderate or greater turbulence, or any other significant weather phenomena reported.

6.5. Planning Briefings. Upon request, the BWS will provide planning briefings for up to 5 days for areas within the Continental United States (CONUS). Coordination is required for planning briefings for areas outside the CONUS or for periods beyond 5 days.

6.6. Staff Weather Briefings. The BWS will present staff weather briefings as scheduled or upon request. Unscheduled briefings must be requested at least 4 hours in advance to allow for adequate preparation. Examples of staff briefings include, but are not limited to 140 WG/CC or 460th Air Base Wing Commander (460 ABW/CC) stand-up and 120th Fighter Squadron Commander (120 FS/CC) stand-up/mass briefings.

6.7. Exercise Support and Briefings. The BWS will provide weather information/briefing support for 140 WG and/or 460 ABW exercises upon request. This includes Battle Staff and deployment briefing support. On scheduled 140th Wing Unit Training Assembly (UTA) weekends, the appropriate 120th Weather Flight (120 WF) Combat Weather Team will provide this support, unless coordinated otherwise via the 140 OG/CC with 2 weeks notice.

Chapter 7

SPECIAL TECHNICAL SERVICES

7.1. Hazardous Spills. In the event that toxic chemicals are released into the atmosphere on Buckley AFB, the BWS will relay current and forecast weather conditions upon request. The BWS may be tasked to provide Chemical Downwind Messages (CDM) to support Command and Control or Disaster Response personnel.

7.2. Climatological Data. Various climatological information is available for most major airfield locations around the world available at the BWS. This information is available for use for operational planning purposes. Historical weather data is also available for Buckley AFB. The BWS will be the office of primary responsibility for any climatological data requests to the Air Force Combat Climatology Center (AFCCC). Urgency, complexity of the request, and workload dictate the required time to acquire climatological data from AFCCC.

7.3. Electro-Optical (E-O) Support. The BWS is capable of providing electro-optical/infrared information to support specialized weapons systems and sensors. Detailed mission-specific products are available through multiple AF programs including Target Acquisition Weapons Software (TAWS) and Infra-red Target-Scene Simulation Software (IRTSS). The BWS station will provide planning forecasts in the form of weather data files for these programs when coordinated by the 120th Fighter Squadron Scheduling Section (120 FS/DOS) or 120th Fighter Squadron Weapons Section (120 FS/DOW). When providing weather data, the BWS will produce a planning forecast NLT 1600L the day prior and update the weather file by 0700 the day of the mission. The weather data file in a TAWS standard format will be stored on the Colorado Air National Guard Local Area Network (COANG LAN). Other information required by the programs, such as target properties, sortie information and sensor specific information will be provided by Mission Planning Cell or Intelligence office. Individual requests for a weather data file can be obtained on a by-request basis with input from any pilot NLT 4 hours prior to the flight mission brief. All personnel with access to this program and the associated documentation will maintain the appropriate security clearance. To enhance mission support, pilots should provide feedback to the BWS as to the accuracy and usefulness of the E-O information provided either using email or phone call to the BWS.

7.4. Nuclear Fallout winds. In the event of a nuclear incident, the BWS will provide upper level wind data, (Effective Downwind Messages (EDM)), to Disaster Preparedness upon request.

7.5. Earthquake Reports. AFMAN 15-111 requires all USAF weather units with observing and/or forecasting functions located in the United States to obtain and report earthquake occurrences. Immediately following an earthquake, a message is sent to the Tinker AFB via AMIS. The message will contain information outlined in AFMAN 15-111. A follow-up message on a United States Geological Survey (USGS) Form 9-3013 will be sent to the USGS address listed on the form within 3 working days or if internet capability is available, the report can be sent electronically via <http://earthquake.usgs.gov>.

Chapter 8

AUTOMATED METEOROLOGICAL INFORMATION SYSTEM (AMIS)

8.1. AMIS Concept of Operations. The AMIS is designated as the single point from which weather personnel disseminate weather products. It automates the way in which weather products are prepared in support of customer missions. The AMIS System Manager (ASM) will be designated by the BWS Manager to manage the system. AMIS outage reporting is handled through the BWS and Air Force Weather Agency (AFWA) AMIS support branch at Offutt AFB, NE. General Dynamics has a maintenance contract with a local representative who is responsible for all AMIS equipment. Under the contract, General Dynamics is responsible for all outages. BWS personnel accomplish outage documentation. In the event that the AMIS central processor in Building 909 becomes inoperative, information will not be transmitted or received by AMIS terminals. Telephone or Internet backup systems will be used.

8.2. AMIS Local Training Process. Initial training for all terminal locations was provided by the ASM shortly after equipment installation. Continuing training requirements for equipment and operations will be the responsibility of each agency utilizing the equipment. Any specialized training requests will be coordinated with the ASM.

8.3. AMIS Operational Responsibilities.

8.3.1. BWS. Weather personnel will provide weather products through AMIS as contained in this publication. The ASM is responsible for overall system management and will be the AMIS focal point for all agencies with AMIS terminals, to include interaction, outage reporting, and any special training requests. Anytime there are AMIS software revisions, the ASM will notify each agency that could be affected and provide any necessary training on that revision.

8.3.2. AMIS Users. The units listed in [Attachment 9](#) should designate a primary and alternate AMIS monitor to be the focal point of any AMIS issues. Further, units will notify base weather station personnel in case of non-receipt of scheduled weather of any AMIS outages, or if the AMIS terminal will be relocated. Units may be asked to perform simple trouble shooting procedures when outages are reported. If the problem cannot be resolved through these procedures, BWS personnel will call contract maintenance. During AMIS outages, BWS personnel will pass watches, warnings, and advisories via telephone to AMIS users. To avoid unnecessary delays in relaying critical weather information to aircrews, air traffic control, and command authorities, units with AMIS terminals should use the information provided and refrain from routinely contacting the weather station.

8.3.3. Non-AMIS Users. Due to flight safety concerns, individual organizations that do not have an AMIS terminal should refrain from contacting the base weather station directly. This can cause delays in relaying information to aircrew, air traffic control agencies, and command authorities. Any unit with concerns regarding delays in attaining information should route concerns via ANG/XOOSW (QAE).

Chapter 9

RECIPROCAL SUPPORT

9.1. General. Mutual support and cooperation are key elements in the BWS's ability to provide complete and timely weather support to its customers. This section outlines reciprocal support for base agencies and individual unit responsibilities.

9.1.1. Unit Support to the Base Weather Station. Each supported unit must inform the QAE in writing of any permanent changes in weather support requirements. One time or temporary changes may be coordinated directly with the Base Weather Station Supervisor. In addition, each unit with AMIS equipment must notify the BWS of all NTFS/AMIS outages and when the NTFS/AMIS equipment is again operational.

9.2. The 460 ABW Command Post will:

9.2.1. Notify BWS of any accident, mishap, or event in which weather or weather service may be involved by notifying the duty forecaster. This contact will be made telephonically if the crash-net is inoperative.

9.2.2. Disseminate all weather warnings, watches, and advisories in accordance with established checklists.

9.3. 120 FS/CC:

9.3.1. Notify the BWS of night flying requirements, deployments, alternate weather requirements, and other special briefing needs, as well as keeping BWS informed of weekly flying schedules.

9.3.2. Ensure the Supervisor of Flying receives a daily weather briefing of expected weather conditions, which may affect flying operations to include DD Form 175-1 information. Aircrews should routinely contact the BWS to update this planning information throughout the day, especially when 120 FS is flying. A suggested minimum of every 3 hours is recommended, and more often as changes in weather conditions warrant.

9.3.3. Provide BWS (and 120th Weather Flight for UTA weekend launches) with flying schedules, to include changes, as necessary. Whenever the 120 FS has flying operations scheduled after 1900L and require weather forecasting support, they will prepare a Contingency Support Request and forward it to the BWS at least 2 work-days prior to the scheduled night-flying.

9.3.4. Pass all significant PIREPs to the BWS through the PMSV radio or the control tower.

9.3.5. Provide TAWS feedback when possible.

9.4. 140th Support Group Commander (140 SPTG/CC) and/or 460th Mission Support Group Commander (460 MSG/CC):

9.4.1. Ensure adequate facilities are provided to operate and conduct all required weather functions and such facilities are maintained at desired standards.

9.4.2. Notify ANG/XOOSW (QAE) and the BWS Supervisor of OPREP-3 reports involving Midwest Weather Inc. personnel, resources, or weather related incidents.

9.4.3. Notify ANG/XOOSW (QAE) and the BWS Supervisor of crimes or serious incidents involving Midwest Weather Inc. service operations, personnel, or property.

9.4.4. Notify ANG/XOOSW (QAE) and the BWS Supervisor of any base damage (including the Aerospace Data Facility (ADF)/2d Space Warning Squadron (2 SWS)) compound caused by weather or any accident or incident involving weather services or resources.

9.5. 460th Communications Squadron (460 CS) will:

9.5.1. Install and provide maintenance on Air Force communication and computer systems. Also provide or arrange for maintenance on all communication lines servicing weather system terminals.

9.5.2. Provide or arrange for maintenance on all weather sensing and measuring equipment IAW the restoral priority list (**Attachment 11**).

9.5.3. If requested, provide an orientation tour of the location of weather sensors to BWS personnel during certification training.

9.5.4. Provide maintenance on Air Force telephones and telephone lines.

9.6. Buckley AFB Readiness Office: Provide guidance and information concerning Disaster Preparedness operations.

9.7. 460th Air Base Wing Public Affairs (460 ABW/PA) : Provide tours through the weather station, with prior coordination of the BWS Supervisor.

9.8. 140th Civil Engineering Squadron (140 CES)/460th Civil Engineering Squadron (460 CES) will:

9.8.1. Provide emergency back-up power for weather station operations. Emergency power is generated and supplied to the weather station from the airfield lighting vault, Building 14. Civil Engineering personnel will notify 140th Operations Group Base Operations (140 OG/OSAB) and the duty forecaster at least 15 minutes before a scheduled change from commercial to emergency power or emergency to commercial power.

9.9. Air Traffic Control will:

9.9.1. Provide a cooperative weather watch per AFI13-203, *Air Traffic Control*. ATC personnel shall notify the BWS Observer (via Hotline) of information meeting established Cooperative Weather Watch criteria.

9.9.2. Notify the weather observer of active runway changes or runway light setting changes.

9.9.3. Notify the weather observer when changing the wind sensors for the active runway.

9.9.4. Upon request, relay observations, warnings, and advisories to the Denver tower as needed during NTFS/AMIS outages.

9.9.5. Provide the BWS an alternate observing site (Building 897) with access to a Class "A" telephone in the event the BWS is evacuated.

9.9.6. Forward to the weather station supervisor a copy of all PMSV evaluations made by the FAA or other qualified agencies.

9.9.7. As duties permit, tower personnel will provide a CWW and notify the duty observer of significant changes in the weather including, but not limited to tornadoes, funnel clouds, thunderstorms, visibility, ceiling, lightning, precipitation, and any other weather that may affect flight safety.

9.9.8. Tower will conduct daily operational checks of the PMSV radio when requested by weather. In the event of an extended PMSV outage at the BWS, tower will place an outage advisory on the Automatic Terminal Information System (ATIS) and, workload permitting monitor 228.45 MHz until a portable radio is available for the BWS.

9.9.9. Notify the duty observer of a change in the active runway or runway light settings.

9.9.10. Relay all weather related PIREPS to the duty forecaster or observer.

9.9.11. In the event of weather station evacuation provide the observer and forecaster adequate space and access to a telephone and a UHF radio tuned to 228.45 MHz in the control tower, if available.

9.9.12. When requested, provide tower indoctrination training to new weather personnel.

9.10. Base Operations will:

9.10.1. Disseminate all weather watches, warnings, and advisories in accordance with established checklists during operational hours.

9.10.2. Notify the duty observer upon changes of observed runway conditions and readings.

9.10.3. Enter weather information into flight information publications as provided by letter from BWS and coordinated through 140 OG/OSA.

9.11. 140 WG/CC:

9.11.1. Schedule BWS for meetings, briefings, and other functions where or when weather information or assistance may be required, ensuring BWS is notified of changes in support requirements, for all 140 WG units.

9.12. 137th Space Warning Squadron (137 SWS) (Greeley). Notify the BWS through ANG/XOOSW (QAE) of any changes in weather support requirements.

9.13. 140th Logistics Squadron Supply (140 LS/LGS): Process equipment transactions and provide all required documentation IAW current supply directives, and provide all necessary equipment custodian training when required.

9.14. 140 OG/OSAB:

9.14.1. Provide the BWS Supervisor or Assistant Supervisor and QAE unclassified information on all aircraft accidents requiring OPREP messages to higher command levels.

9.14.2. During duty hours disseminate weather watches, warnings, and advisories to all base agencies requiring the information that do not have an AMIS terminal.

9.14.3. Provide Base Security Police with a list of base agencies to contact during Base Operations' non-operational hours.

9.14.4. Notify the BWS of all changes in Runway Condition Readings (RCR)/Runway Surface Conditions (RSC). When AMIS is not operational, notify all using agencies by telephone.

9.14.5. Notify the BWS Supervisor of changes to aircraft minimums in Flight Information Publications (FLIPS).

9.14.6. Notify the BWS of impending VIP (Code 3 or above) arrivals.

9.15. 140 OG/CC: Notify ANG/XOOSW (QAE) when review or coordination is required on Base Plans or other directives.

9.16. 120 WF : Coordinate with the BWS supervisor of any 120 WF training requiring use of BWS facilities. Training will not interfere with the normal operational duties of the BWS and will be coordinated with BWS prior to the start of training when possible.

9.17. 140th Communications Squadron (140 CS): Install and provide maintenance on Air National Guard-funded communications and computer systems.

9.18. Army Aviation Support Facility: Notify the BWS of scheduled weather briefing requirements, and provide a schedule of planned flights with as much advance notice as possible.

9.19. 460 ABW/CC. Notify the BWS through ANG/XOOSW (QAE) of any changes in weather support requirements.

9.20. 2d Space Warning Squadron Operations (2 SWS/DOS). Notify the BWS through ANG/XOOSW (QAE) of any changes in weather support requirements.

9.21. Aerospace Data Facility Weather (ADF/WE). Notify the BWS through the ANG/XOOSW (QAE) of any specialized weather data requirements. Coordinate tours and training for new ADF personnel with the BWS supervisor.

Chapter 10

SPECIALIZED SUPPORT (WEATHER SUPPORT TO INDIVIDUAL UNITS/AGENCIES)

10.1. General. In addition to the general services specified above in this document, the BWS will provide specialized weather support to the following agencies:

10.2. 140 WG/CC. Provide staff weather briefings and operational flying briefings, in formats requested by the customers involved in the briefings. The 120th Weather Flight is responsible for providing weather support to 120 FS operations on UTA weekends at the direction of ANG Readiness Center. The BWS retains responsibility for supporting all other Buckley AFB units, remote COANG units (per this instruction above), local military and US government organizations (per applicable AF Guidance), and transient aircraft.

10.2.1. 140th Wing Plans (140 WG/XPL) and/or 460th Air Base Wing Plans (460 ABW/XP). Provide weather briefings for mobility programs upon request.

10.2.2. 137 SWS (Greeley).

10.2.2.1. Relay Point Weather Warnings for any of the following conditions: winds in excess of 35 knots, hail 1/4 inch or greater in diameter, and rain or snow accumulation greater than two (2) inches within 12 hours, within 15 minutes of receipt.

10.2.2.2. Provide a plain language forecast for the Greeley area to the Operations Officer on a daily basis.

10.3. 140th Support Group (140 SPTG) and/or 460th Mission Support Group (460 MSG):

10.3.1. 460 CES.

10.3.1.1. Provide weather information to support firefighting, when requested.

10.3.1.2. Provide a monthly summary of heating or cooling degree-days.

10.3.1.3. Buckley AFB Readiness Office: Provide nuclear fallout wind data via National Weather Service Nuclear Fallout Wind (DFUS 1 KWBC) bulletins.

10.4. 140 OG/CC and/or 460 MSG/CC. Through ANG/XOOSW (QAE) provide input for all applicable base plans and base regulations upon request.

10.4.1. 120 FS/CC:

10.4.1.1. Provide current weather and operational forecasts for alternate bases, selected by the Supervisor of Flying (SOF), when Buckley AFB has a ceiling or prevailing visibility below 3,000 feet or five (5) miles.

10.4.1.2. Provide flight weather briefing information. For routine missions a DD Form 175-1 will be issued and transmitted to 140th Wing Tactical Operations (TACOPS) approximately 2 hours prior to the first departure. The pilot, aircraft commander, or squadron Supervisor of Flying should contact the Forecaster approximately 1 hour prior to the departure time to update the information with the latest available weather data. Flight weather briefings for Alert Force missions will be issued when requested by the Fighter Duty Officer, dependent upon the Alert Force posture.

10.4.1.3. 120 WF: Allow 120 WF members to use facilities on a non-interference basis.

10.4.1.4. Buckley Air Traffic Control Tower (DMA/OAA):

10.4.1.4.1. Provide weather indoctrination and any required weather evaluations for Air Traffic Controllers.

10.4.1.4.2. Notify the ATC Operations Manager or Tower Chief whenever the alternate-observing site (Control Tower) is to be activated or used for training.

10.4.1.4.3. Provide access to weather records for copying to complete studies, investigations, etc.

10.5. 460 CS/SCM . Notify maintenance personnel and provide information concerning any weather equipment outages, and provide an equipment repair priority list ([Attachment 11](#)).

10.6. 140 LS/LGS. Maintain equipment accountability IAW current supply directives and contract DAHA90-01-C-0009. Perform equipment inventories and sign Custodian Authorization Custodian Receipt Listing (CA/CRL) when required.

10.7. 140th Wing Safety (140 WG/SE). Provide wind-chill factors from the hours of 0600L-1830L (until 2300L during night flying) whenever the temperature is 40 degrees Fahrenheit or below.

10.8. AASF. Provide observed weather advisories for surface wind gust spreads equal to or greater than 15 knots.

10.9. ADF/WE: Allow ADF personnel to use BWS facilities on a non-interference basis. Additionally, the BWS will provide Monthly Climatic Summaries for Buckley AFB, and will provide tours and training for incoming operations personnel.

10.10. 2 SWS/DOS . Provide a 48-hour plain language forecast for Buckley to include maximum and minimum temperatures. On Wednesday, an extended 5-day forecast will be provided. These forecasts will be disseminated over AMIS not later than 0700L daily.

JAMES A. SANDS, Colonel, USAF
Commander

Attachment 1**SPECIAL OBSERVATION CRITERIA**

A1.1. Ceiling. A ceiling (the height assigned to the lowest broken or overcast layer of clouds) forms or dissipates below, decrease to less than, or if below, increases to equal or exceed:

3,000 ft

1,500 ft

1,000 ft

800 ft

700 ft

600 ft

500 ft

300 ft

200 ft

A1.2. Sky Condition. A layer of clouds or obscuring phenomena aloft (i.e., smoke) is observed below 800 feet and no layer was reported below this height previously.

A1.3. Visibility. Prevailing visibility is observed to decrease to less than, or if below, increases to equal or exceed:

3 miles

2 1/2 miles

2 miles

1 3/4 miles

1 1/2 miles

1 1/4 miles

1 mile

1/2 mile

A1.4. Runway Visual Range (RVR). The RVR decreases to less than, or if below, increases to equal or exceed 2,400 feet.

A1.5. Tornado/Funnel Cloud. A tornado or funnel cloud is observed, or disappears from sight.

A1.6. Thunderstorm. A thunderstorm begins or ends.

A1.7. Precipitation.

A1.7.1. Hail begins or ends.

A1.7.2. Freezing Precipitation begins, ends, or changes intensity.

A1.7.3. Ice pellets begin, end, or change intensity.

A1.7.4. Any other form of precipitation begins or ends.

A1.8. Wind.

A1.8.1. Squall. The 2-minute average speed suddenly increases at least 16 knots and is sustained at 22 knots or more for at least 1 minute.

A1.8.2. Wind Shift. The wind direction changes by 45 degrees or more in less than 15 minutes with sustained winds of 10 knots or more throughout the wind shift.

A1.9. Runway Condition Reading (RCR). An RCR is first reported by base operations, or is reported to be different from a previous RCR.

A1.10. Tower Visibility. Upon receipt of a reportable tower visibility value, when either tower or weather's visibility is less than 4 miles and they differ by a reportable SPECI value.

A1.11. Nuclear Accident (AEROB). A nuclear accident requires a full element special observation with the remark "AEROB" as the final remark.

A1.12. Volcanic Ash . When volcanic ash is first observed.

A1.13. Other. Any other situation that the observer considers critical to the safety of installation operations.

A1.14. Single element specials will be taken only when a delay in reporting all elements of the SPECI would cause an immediate threat to life, or property, e.g. TORNADO.

Attachment 2**LOCAL OBSERVATION CRITERIA**

A2.1. Runway Visual Range (RVR). RVR (may be a single element local) decreases to less than, or if below, increases to equal or exceed:

6,000 ft

5,000 ft

Visibility conditions for reporting RVR are first observed or no longer exist

When no RVR is available (RVRNO) for active runway and RVR conditions are first met

When RVRNO is no longer applicable and RVR conditions still exist

A2.2. Surface Winds . The first occurrence of surface winds, including gusts, that equal, or exceed the following thresholds and was not reported in the last locally disseminated observation.

25 Knots

35 Knots

50 Knots

15 Knots, or more than the average speed

A2.3. Aircraft Mishap. Immediately following notification, or sighting of an aircraft mishap at, or near Buckley AFB, unless there has been an intervening METAR or SPECI observation.

A2.4. Altimeter Setting. Altimeter setting and pressure altitude locals are taken at a frequency not to exceed 35 minutes when there has been a change of .01 inch Hg or more since the last locally transmitted value. (**NOTE:** Not required when the airfield is closed.)

A2.5. Runway Change. A full element local observation is taken after notification of a runway change to allow sensors to stabilize.

A2.6. Alert Klaxon. A local observation containing a minimum of air temperature, wind direction and speed, altimeter setting, and pressure altitude will be taken and transmitted when the Alert Klaxon sounds.

A2.7. Wind Equipment Inoperative. When the wind equipment (AN/GMQ-13) is inoperative or suspected of being out-of-tolerance, the observer will take single element local wind observations at 15, 30, and 45 minutes past the hour and relay this information to the Control Tower. This procedure will continue until the AN/GMQ-13 is deemed reliable again. (**NOTE:** These wind locals are not required when the airfield is closed.)

A2.8. Other. Any other situation that the observer considers significant to the safety of installation operations.

Attachment 3

METEOROLOGICAL EQUIPMENT AND COMMUNICATIONS

A3.1. AMIS. The AMIS is an integrated, automated system designed to provide weather, air traffic control, and base operations products to complete the mission. Alphanumeric weather data flows through Tinker AFB, Oklahoma. Graphical products are received from the AFWA located at Offutt AFB, Nebraska. AMIS is the primary dissemination system for observations, forecasts, advisories, watches, warnings, and PIREPs.

A3.2. Digital Barometer Altimeter Setting Indicator (DBASI ML-658GM)/Aneroid Barometer (ML-102-G). The Digital Barometer Altimeter Setting Indicator and Aneroid Barometer are used to provide measurement of station pressure. Station pressure is used to determine sea-level pressure, altimeter setting, and pressure altitude. These instruments are located in the BWS.

A3.3. Laser Ceilometer (AN/GMQ-34). A laser ceilometer is used to determine the height of the cloud ceiling when the ceiling is at or below 12,000 feet AGL. It is located at the north end of the runway.

A3.4. Lightning Detection System (LDS). The LDS is used to display real-time cloud-to-ground lightning strikes for the entire continental United States. Data is received via internet communications.

A3.5. Pilot to Metro Service Radio (PMSV). The PMSV operates at a UHF frequency of 228.45 MHz and allows ground-to-air-to-ground radio communications.

A3.6. Rain Gauge (ML-17). A rain gauge is used to measure precipitation. The rain gauge is located near the southeast corner of Building 909.

A3.7. Satellite Imagery Receivers. Weather satellite imagery is an integral part of day-to-day weather operations and is a valuable visual aid for aircrew briefings. Currently, all satellite imagery is received through AMIS and internet resources.

A3.8. Temperature/Dew Point Sensors (AN/FMQ-8). Temperature and dew point sensors are used to determine the ambient air temperature and dew points (the temperature the air would have to be cooled to in order to have water vapor condense). These sensors are located east of the midpoint of the runway.

A3.9. Transmissometer (AN/GMQ-32). A transmissometer is used to electronically measure the visibility when visibility is one mile or less. This sensor is located at the north end of the runway.

A3.10. Weather Surveillance Radar-1988 Doppler (WSR-88D). The WSR-88D is a sophisticated weather radar capable of detecting not only all types of precipitation, but clouds and wind information as well.

A3.11. Wind Measuring Sensors (AN/FMQ-13). The wind measuring sensors are used to determine the wind direction in degrees and speed in knots. Sensors are located at each end and at the midpoint of the runway.

Attachment 4**FORECAST SPECIFICATION**

A4.1. General. The Terminal Aerodrome Forecast will specify the expected occurrence, duration, and intensity of the following weather conditions:

A4.2. Ceiling. Ceiling decreases to less than, or if below, increases to equal or exceed the following values:

3,000 ft

1,500 ft

1,000 ft

200 ft

A4.3. Visibility. Visibility decreases to less than, or if below, increases to equal or exceed:

3 miles

2 miles

1/2 mile

A4.4. Wind. Wind speed change of 10 knots or more, or a direction change of more than 30 degrees when the wind speed (including gusts) is expected to be in excess of 15 knots.

A4.5. Precipitation. Any precipitation.

A4.6. Thunderstorms. Any thunderstorms.

A4.7. Weather Warnings. All forecasted weather-warning criteria.

A4.8. Icing and Turbulence. Icing or turbulence not associated with thunderstorms, from surface to 10,000 feet mean sea level (MSL).

A4.9. Low-Level Wind Shear (LLWS). Low-level wind shear below 2,000 feet that is not associated with thunderstorms.

Attachment 5**AMENDMENT CRITERIA**

A5.1. General. The terminal aerodrome forecast will be amended when any of the following are expected to occur or have occurred and are expected to persist for more than 30 minutes.

A5.2. Ceiling. Ceilings decrease to less than, or if below, increase to equal or exceed:

3,000 ft

1,000 ft

200 ft

A5.3. Visibility. Visibility decreases to less than, or if below, increases to equal or exceed:

3 miles

2 miles

1/2 mile

A5.4. Winds. Error in forecast winds of:

10 knots or more, including gusts

More than 30 degrees when the wind speed, including gusts, is forecasted to be in excess of 15 knots

A5.5. Precipitation. Precipitation when:

Unforecast freezing precipitation begins or ends

The beginning or ending of precipitation causes an advisory or warning to be issued, canceled, or amended

The occurrence or non-occurrence of precipitation is deemed operationally significant

A5.6. Weather Warnings/Advisories. Warning or TAF amendable weather advisory criteria which occurs or is expected to occur and is not specified in the TAF or was forecast and is no longer occurring, or is no longer expected to occur.

A5.7. Icing or Turbulence. Icing or turbulence of moderate or greater intensity (Surface (SFC)-10,000 ft MSL) which occurs or is expected to occur and is not specified in the TAF or was forecast and is no longer occurring, or is no longer expected to occur.

A5.8. Low-Level Wind Shear. Low-level wind shear below 2,000 feet not associated with thunderstorms occurs or is expected to occur and is not specified in the TAF or is forecast but is no longer occurring or expected to occur.

A5.9. Other. Also, anytime the forecaster considers the forecast to be unrepresentative.

Attachment 6**AIRBURST RANGE FORECAST SPECIFICATION**

A6.1. General. The Airburst forecast will specify the expected occurrence, duration, and intensity of the following weather conditions:

A6.2. Ceiling. Ceiling decreases to less than, or if below, increases to equal or exceed the following values:

10,000 ft

4,500 ft

3,000 ft

A6.3. Visibility. Visibility decreases to less than, or if below, increases to equal or exceed:

5 miles

3 miles

A6.4. Wind. Wind speed change of 10 knots or more, or a direction change of more than 30 degrees when the wind speed (including gusts) is expected to be in excess of 15 knots.

A6.5. Precipitation. Any precipitation.

A6.6. Thunderstorms. Any expected thunderstorms will be described as isolated, few, scattered, or numerous based on the aerial coverage.

A6.7. Icing and Turbulence. Icing or turbulence not associated with thunderstorms will be specified as a yes or no. Details of icing and turbulence will be given during the weather brief prior to take-off.

Attachment 7**WEATHER ADVISORIES**

A7.1. Observed Weather Advisories. The BWS observer will issue/cancel the following observed weather advisories pertinent to flight operations and resource protection over the AMIS.

A7.1.1. Ice Foreign Object Damage (FOD). An Ice FOD Advisory will be issued whenever any of the following conditions are present. The advisory will be canceled when the conditions no longer exist.

A7.1.1.1. The air temperature is below 45F and standing water, snow, or ice exists on the ramp or runway.

A7.1.1.2. The air temperature is below 45F and precipitation or fog is present.

A7.1.1.3. The air temperature is below 45F and the difference between the dew point temperature and air temperature is less than 10 degrees.

A7.1.2. Gust Spread Advisory. When requested by AASF, issued when the instantaneous reading between wind peaks and lulls is greater than or equal to 15 knots.

A7.1.3. Snow Accumulation Advisory. Issued when new snowfall accumulation equals 2 inches.

A7.2. Forecast Weather Advisories. The BWS forecaster will issue/cancel the following forecast weather advisories over the AMIS. Agencies with AMIS terminals will notify subordinate agencies that do not have AMIS. These advisories are only issued during normal forecaster duty hours (0600-1900L).

A7.2.1. Surface Wind Advisory. Issued when surface winds are forecast to be 25-49 knots. The desired lead-time is 30 minutes. This advisory is canceled when conditions are no longer expected.

A7.2.2. Cross Wind Advisory. Issued when cross winds are forecasted to be equal to or greater than 25 knots. The desired lead-time is 30 minutes. This advisory is canceled when conditions are no longer expected.

A7.2.3. Low Level Wind Shear. Issued when Low Level Wind Shear conditions are expected below 2,000 feet AGL. The desired lead-time is 30 minutes. This advisor is canceled when conditions are no longer expected.

Attachment 8

WEATHER WATCHES AND WARNINGS

A8.1. Weather Watches. Weather watches will be issued on the potential for the weather condition to occur and will be canceled when the potential no longer exists or upgraded to weather warnings when the potential is significant enough that protective measures must be taken to protect property and life.

A8.1.1. Weather Watch Criteria.

Tornado

Severe thunderstorms (Winds \geq 50 knots and/or Hail \geq 3/4 inches)

Lightning within 5 nautical miles

Snow accumulation (\geq 2 inches in 12 hours)

Freezing precipitation

Blizzard Conditions

A8.2. Forecast Weather Warnings. Weather warnings will be issued when the potential for established weather criteria is significant enough that protective measures must be taken to protect property and life. All warnings are valid for the area within a five nautical mile radius of the center of the runway complex. All weather warnings are issued prior to the onset of the expected condition and canceled when the conditions are no longer expected.

A8.2.1. Weather Warning Criteria and Desired Lead Times.

Tornado 15 minutes

Severe Thunderstorms (Winds \geq 50 knots and/or Hail \geq 3/4") 30 minutes

Non-convective Surface Winds \geq 50 knots 60 minutes

Blizzard Conditions 60 minutes

Freezing Precipitation 60 minutes

Snow Accumulation (\geq 2" in 12 hours) 1 hour prior to onset

NOTE: Watches and warnings will specify size, strength, or amounts expected, as applicable.

A8.3. Observed Weather Warning. An observed weather warning will be issued when thunderstorms/lightning are observed within a five nautical mile radius of the center of the airfield complex. This observed warning will be canceled when the thunderstorms/lightning move outside five nautical miles or the storm dissipates.

Attachment 9

AMIS TERMINALS UNIT BLDG#

AGENCY	NOTIFICATION RESPONSIBILITY	
	<u>BWS</u>	<u>BASE OPERATIONS</u>
A. TOWER: HOTLINE /79103/79104/79640*	X	
B. BASE OPS: 79650*	X	
C. 460 ABW/CP: 75613*	X	
D. 140 WG/CP: 79956 OR HOTLINE*	X	
E. TAC OPS: 79470*	X	
F. AASF OPS: 79846*	X	
G. FIRE DEPT: 79928*	X	
H. 2 SWS CGS SOC: 75874*	X	
I. ADF: 73919*	X	
J. 140 LG MXS CONTROL: 79559*	X	
K. NORAD WSU: 94-556-7622	X	
L. 140 OG/OSA		X
M. 140 WG FLIGHT SAFETY		X
N. 140 SPTG/CE		X

NOTES:

BWS notification will be done either through NTFS/AMIS, or telephonically.

* = Agency has an NTFS/AMIS terminal

Attachment 10

NOTIFICATION MATRIX – ADVISORIES/WATCHES/WARNINGS

Agency Notification: Alpha characters (A, B, C,) correspond to the agencies listed on the previous page. An “X” listed below the agency’s alpha character indicates the agency requires that particular product/ notification.

AGENCY

WATCHES	DLT	A	B	C	D	E	F	G	H	I	J	K	L	M	N
TORNADO	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SVR TSTM	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BLIZZARD	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X
HEAVY SNOW	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FREEZINGPRECIP	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LIGHTNING	30 min	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WARNINGS	DLT	A	B	C	D	E	F	G	H	I	J	K	L	M	N
TORNADO	15 min	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WINDS \geq 50 KTS	60 min	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BLIZZARD	60 min	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FREEZINGPRECIP	60 min	X	X	X	X	X	X	X	X	X	X	X	X	X	X
HEAVY SNOW	60 min	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SEVERE TSTMS	30 min	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TSTM/LTG W/I 5NM	Observed	X	X	X	X	X	X	X	X	X	X		X	X	X
ADVISORIES	DLT	A	B	C	D	E	F	G	H	I	J	K	L	M	N
WINDS 25-49 KTS	30 min	X	X	X	X	X	X	X	X	X	X			X	
CROSSWINDS	30 min	X	X			X		X						X	
LLWS	30 min	X	X			X	X							X	
ICE FOD	Observed	X	X		X	X					X			X	
SNOW ACCUM \geq 2”	Observed	X	X	X	X			X							X

GSU Units Requiring Weather Support in Buckley AFB Area

For these locations, warnings are to be issued as appropriate for these GSU locations, independent of the Buckley criteria above where applicable.

WATCHES	DLT	Agency	
		A	B
TORNADO	N/A	X	X
SVR TSTM	N/A	X	X
BLIZZARD	N/A	X	X
HEAVY SNOW	N/A	X	X
FREEZING PRECIP	N/A	X	X
LIGHTNING	30 min	X	X
WARNINGS	DLT	A	B
TORNADO	30 min	X	X
SEVERE TSTM	30 min	X	X
WINDS \geq 50 KTS	60 min	X	X
BLIZZARD	60 min	X	X
FREEZING PRECIP	60 min	X	X
HEAVY SNOW ACCUM (\geq 2 Inches)	60 min	X	X
TSTM/LTG W/IN 5NM	Observed	X	X

Agency List

A. Commerce City CO (8 miles WNW of Buckley, Lat/Lon 105.67, 39.07)

Contact: Aerospace Data Facility (ADF), 303-677-3301

B. Boulder CO (35 miles WNW of Buckley, Lat/Lon 105.25, 40.02)

Contact: 460 ABW/CP, 75612 or 75613

Attachment 11

WEATHER EQUIPMENT RESTORAL PRIORITY (*NOTE 1*)

Weather Maintenance

MISSION	DESCRIPTION		
<u>RESTORAL</u>	<u>NOMENCLATURE</u>	<u>LOCATION</u>	<u>USER</u>
1	FMQ-13 (Wind Speed and Direction)	Buckley	TOWER/WEATHER OPS/TACOPS
2	WSR-88D (NEXRAD PUP) (<i>NOTE 2</i>)	Buckley	WEATHER OPS
3	GMQ-34 (Ceilometer)	Buckley	WEATHER OPS
4	FMQ-8 (Temperature Dewpoint Set)	Buckley	WEATHER OPS
5	GMQ 32 (Transmissometer)	Buckley	WEATHER OPS
6	ML-658 Barometer (DBASI)	Buckley	WEATHER OPS
7	ML-102 Barometer (Aneroid)	Buckley	WEATHER OPS
8	Rain Gauge	Buckley	WEATHER OPS

NOTES:

1. With the exception of the WSR-88D, maintenance or repairs on weather equipment is required only when the airfield is open. Outages for this equipment shall be reported when noted, however, maintenance response may be deferred until normal duty hours or whenever the airfield re-opens, whichever comes first. If two (2) or more pieces of equipment require repair at the same time, maintenance personnel shall repair these in the relative order of priority from the list above. Dependent upon the weather conditions and/or operational needs at the time of the outage, the weather station supervisor may modify the restoral sequence to maximize support to the Buckley mission.
2. The WSR-88D requires 24-hour maintenance support.